

REMARKS

Claims 1-32 are all the claims pending in the application.

I. Preliminary Matters. The Examiner noted that the drawings filed on 13 September 2004 were accepted.

II. Summary of the Office Action. In the office action, claims 2 and 3 were objected to for asserted informalities of wording.

Claims 1/5-28 and 31-32, 2/5-28 and 31-32, 3/5-28 and 31-32, and 4/7, 8-9, 20-23, 28-29 and 31 were rejected as indefinite under 35 USC 112, second paragraph.

Claims 1-3, 5-18, 27, 28-32 were rejected under 35 USC 102(b) as anticipated by Wattenbarger (3216826).

Claims 1, 4-7, 9, 12, 13, 16-18, 27-28 and 32 were rejected under 35 USC 102(b) as being anticipated by Harrington (2674179).

Claims 1-6, 8, 10-13, 15-16, 18-19 and 29-31 were rejected under 35 USC 102(b) as being anticipated by Liljenberg (3919931).

Claims 1-3 and 19-26 were rejected under 35 USC 103(a) as being obvious over Wattenbarger (3216826) in view of Sholl (3769037).

No allowable subject matter was indicated at this time.

III. Objections to Claims. The word "a" has been inserted in claim 2 before "needle" in claim 2. However, it is respectfully submitted that "of" should not be inserted before "flow" on claim 2, line 5, because "mass flow" is understood by the ordinary artisan to be the flow of a particular mass of a fluid, independent of density fluctuations of that fluid due to compression or other causes, as explained in US Patents 4722232, 4787254, 7197953 and many others.

IV. Claim Rejections Under 35 USC 112. The claims have been amended for clarity.

Claim 3 has been amended to explicitly state that the orifice is independent of the needle (basis is provided by page 9, lines 27-28, and original claim 18) and other claims have been amended to indicate that the orifice is in the needle. It is submitted the rejection of claims 1/5-28 and 31-32, 2/5-28 and 31-32, 3/5-28 and 31-32, and 4/7, 8-9, 20-23, 28-29 and 31 should therefore now be withdrawn.

V. Claim Rejections Under 35 USC 102 The rejection of claims 1-3, 5-18, 27, 28-32 under 35 USC 102 as anticipated by Wattenbarger 3216826 must be withdrawn. Wattenbarger does not meet the limitation that the inlet pressure is more than approximately twice the back pressure of the needle. The office action states “Wattenbarger further teaches that the pressure above the orifice is greater than about 2 times the pressure below the orifice and further where the critical pressure is approximately .53 times the pressure above the orifice (col. 3 line 20+).”

However, the cited section of Wattenbarger does not even refer to the pressure below (after) the orifice (back pressure), let alone state that the pressure above (before) the orifice is at least approximately 2 times higher. Further, the cited lines clearly state that “The injection pressure and time of injection vary inversely with each other in this application. I therefore, correlate the two factors so that given any constant time for injection, the injection pressure on the gas will be sufficient to allow it to form the desired porous internal structure. . . .” Thus, the injection pressure and time of Wattenbarger are required to be sufficiently high to form a porous internal structure and expand the meat. The claims have been amended to state that the injecting is done without causing substantial damage to the permeable solid (basis is provided, for example, by page 2, line 11; page 2, line 24; page 5, line 19; page 8, line 3; page 9, line 10; and page 14, line 20), so that Wattenbarger no longer anticipates the claims.

Further, because Wattenbarger is directed to separate the muscle fibers and septa to create an open or porous tissue structure (col. 3, line 8), Wattenbarger cannot render the present invention obvious, alone or in combination with other references, because Wattenbarger teaches against the present invention, which is directed to avoiding substantial damage to the meat.

The rejection of claims 1, 4-7, 9, 12, 13, 16-18, 27-28 and 32 under 35 USC 102 as anticipated by Harrington 2674179 must also be withdrawn.

The office action states that "Harrington continues by teaching that the pressure above the orifice is greater than about 2 times the pressure below the orifice, (col. 2 line 30+) that the critical pressure is approximately .53 times the pressure above the orifice," However, Harrington does not meet the limitation of maintaining the inlet pressure at more than approximately twice the back pressure. Instead, Harrington is directed to providing a flow restricting means (plugs) having orifices to reduce the pressure in the needle passages from the pressure in the manifold (col. 2, lines 18-38). Further, Harrington is directed to injecting of liquids, and the claims have been amended to be limited to injecting of gases.

Because Harrington is directed to liquids, Harrington also cannot render the present invention obvious, alone or in combination with other references. Gases can compress, so that the amount of gas flowing through the needle can remain constant even though the back pressure may vary (because of variations in density of the permeable solid), if the source pressure is maintained at approximately twice the back pressure (so that gas continues to flow at sonic velocity). By contrast, because liquids are comparatively incompressible, variations in back pressure caused by variations in density of the permeable solid will always reduce the flow rate and therefore the amount of liquid flowing through the needle.

The rejection of claims 1-6, 8, 10-13, 15-16, 18-19 and 29-31 under 35 USC 102 as anticipated by Liljenberg must be withdrawn.

The office action states “With respect to claims 1-4 Liljenberg teaches combining an orifice and a needle, where the orifice is sized to an accurate fluid flow rate and the fluid is a gas. (col. 5 line 65+).” However, Liljenberg does not recite an orifice in the needle, but instead recites a controlling valve 41 that is remote from the needles (see Fig. 1). Thus, except for claim 3 (and claims dependent thereon) Liljenberg does not meet the limitation of a needle having an orifice. With respect to claim 3, Liljenberg's controlling valve 41 provides fluid to multiple needles 20 through a crosshead 19 serving as a manifold (col. 4, line 66, to col. 5, line 10 and Figs. 1 and 7). Liljenberg does not have a needle for each valve (or orifice).

Further, Liljenberg, whether alone or in combination with other references, cannot render the present invention obvious because Liljenberg does not teach or suggest any manner of controlling the variant flow between individual needles caused by variations in density in the permeable solid, as the needles are supplied with fluid through a manifold (col. 4, lines 66-67). By contrast, this invention teaches that by maintaining the source pressure at approximately double the back pressure, variations in density of the permeable solid will not cause variations in the mass of gas that is injected each second.

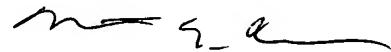
VI. Claims Rejections Under 35 USC 103. The rejection of claims 1-3 and 19-26 under 35 USC 103 as unpatentable over Wattenbarger (3216826) in view of Sholl (3769037) must be withdrawn. The office action states “With respect to claims 1-3, Sholl teaches combining an orifice and a needle, where the orifice is sized to an accurate fluid flow rate and the fluid is a gas. (col. 3 line 50+).” However, it is clear that Sholl is not directed to using a needle at all, but instead is directed to using a nozzle having an insert “with three openings 30 all

of which are appropriately aligned relative to one another to direct streams 32 to the focal point 34." Col. 3, lines 29-32. Thus, Sholl does not teach a needle at all.

VII. Conclusion. In view of the above, it is respectfully submitted that this application is now in condition for allowance, and an early action to that effect is earnestly solicited. If the claims would be in condition for allowance except for minor revisions, Applicant's attorney courteously invites a telephone interview initiated by the Examiner so that such revisions can be effected by Examiner's amendment.

Respectfully submitted,

Date: 8/22/07



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